



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

GREAT PYRAMID OF GIZEH.

BY THE SECRETARY.

FROM INFORMATION FURNISHED BY J. K. PERRING, ESQ.

THE Great Pyramid of Gizeh originally occupied an area equal to 588,939,595 superficial feet, or about $13\frac{1}{2}$ English acres, the side of the square being 767,424 feet.

The original perpendicular height of this structure was 479·640 feet, and the total contents of solid masonry equal to about 89,418,806 cubic feet, weighing nearly 6,878,369 tons. Taking the masonry at only one shilling per cubic foot, including carriage, materials, and workmanship, the cost of such a structure would be 4,470,940*l*.

Again, the masonry contained in the Great Pyramid of Gizeh would be sufficient for the erection of 1120 columns, each 20 feet square, and of the height of the monument of London, which is 202 feet.

The blocks of which this great work is composed are roughly squared, but built in regular courses, varying from 4 feet 10 inches to 2 feet 2 inches in thickness, the joints being properly broken throughout.

The stone used for the casing of the exterior and for the lining of the chambers and passages was obtained from the Gebel Mokattam, on the Arabian side of the valley of the Nile. It is a compact limestone, called by geologists swinestone or stinkstone, from emitting a fetid odour when struck. Whereas, the rocks on the Libyan side of the valley where the pyramids stand, and of which the interior is formed, are of a loose, granulated texture, abounding with marine fossils, and consequently unfit for fine work, and liable to decay when exposed to the action of the atmosphere.

The mortar used for the casing and for the lining of the passages was composed entirely of lime; but that in the body of the pyramid was compounded of ground-red brick, gravel, Nile earth, and crushed granite, or of calcareous stone and lime; and, in some parts, a grout or liquid mortar of desert sand and gravel only has been used.

JEFFERY'S PATENT MARINE GLUE.

MR. JEFFERY, the inventor and proprietor of the marine glue, and one of the early producers of copper-plates by galvanic action, subsequently turned his attention to the application of the same process to copper-sheathing for vessels; "but, finding that he

could not reduce the cost of production below that of plates made by the ordinary method, and that the waste by oxidation on the one hand, and the mischief of foul bottoms when oxidation was checked on the other, were insuperable barriers to his success," he gave up any further attempt. Nevertheless, his investigations on the subject suggested the idea of employing resins insoluble in water as an effectual protection to ships' bottoms. Moreover, he considered that, by combining elastic with non-elastic substances, and adding to the composition certain ingredients which are known to be destructive both to animal and vegetable life, he might readily attain his object. The *Teredo Navalis*, or ship-worm, he especially had in view, as the greatest enemy to be overcome.

In the course of a series of experiments which Mr. Jeffery tried with various substances, he succeeded in discovering the composition to which he has given the name of "marine glue," the peculiar properties of which are its being insoluble in, and impervious to, water; elastic, so as to expand or contract according to the strain on the timber or the changes of temperature; sufficiently solid to fill up the joints, and add strength to the timber construction; and adhesive, so as to connect the timbers firmly together.

To make the marine glue:—A solution is first made of caoutchouc of good quality with coal naphtha, in the proportion of one pound of the caoutchouc to five gallons of the naphtha. The caoutchouc is cut into thin shreds before being used; and the mixture is stirred until the caoutchouc is so dissolved as to bring it to the consistence of thick cream. Mr. Jeffery finds that the caoutchouc is sufficiently dissolved in about ten or twelve days.

One part by weight of the above described solution, and two parts by weight of shel-lac, are then put into an iron vessel. The whole is then heated and stirred until thoroughly amalgamated: and this substance constitutes the marine glue.

SILVER PLATING AS PRACTISED AT SHEFFIELD.

BY MR. POTTER, JUN.

PLATING on copper was first introduced in the year 1742 by Mr. Thomas Bolsover, a member of the Corporation of Cutlers at Sheffield, who, when repairing a knife-handle, composed partly of silver and partly of copper, suddenly thought that it might be possible so to unite the two metals as to form a cheap substance, which, presenting an exterior of silver, might be used for the manufacture of several articles hitherto made entirely of that metal. It was not